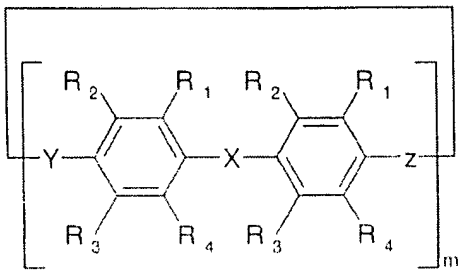
In the Claims

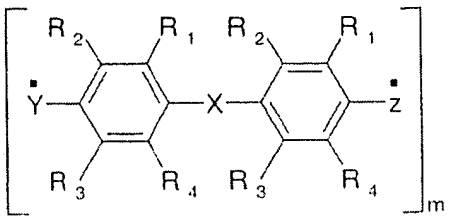
Please amend the claims as follows:

1. (Currently amended) A method of producing bioactive surfaces on an endoprosthesis ~~vessel endoprostheses~~, wherein the endoprosthesis comprises ~~articles being initially provided with~~ a functional polymer layer and ~~subsequently with another~~ an active ingredient-containing layer positioned on the functional polymer layer, the method comprising:

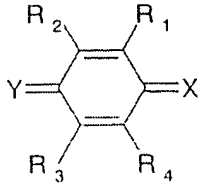
(a) depositing ~~wherein the characterized in that for the production of the functional polymer layer from the~~ starting compounds of general structures (1), (2) ~~and~~/or (3) or a combination thereof ~~at elevated temperatures and reduced pressures substantially monomers are produced in the gas phase, which are subsequently polymerized by cooling at a reduced temperature, comprising:~~



(1)



(2)



(3)

wherein $R_{1,2,3,4}$: are, equal or different and comprising ~~each,~~ hydrogen atoms, halogen atoms, alkyl groups, ~~and/or~~ substituted alkyl groups, aryl groups, ~~and/or~~ substituted aryl groups, organic residues, ~~or~~ organic radicals, a compound of ~~groups of~~ the general structure CO (O-M-A), ~~(CO(O-M-A) (~~ wherein M: is an aliphatic or aromatic groups; ~~and~~

A is a hydrogen, hydroxyl group, amino group, carboxyl group, ~~s),~~ metallated groups, ~~hydroxyl groups, amino groups, carboxyl groups,~~ ester groups, ether groups, acid halide groups, isocyanate groups, sulfur containing groups ~~(e.g. sulfonic acid, thioether, sulfuric acid groups)~~, nitrogen containing groups ~~(e.g. nitrile, amide, nitro, nitrosamine groups)~~, phosphorus containing groups ~~(e.g. phosphoric acid ester, phosphonate groups),~~ or silicon containing groups (e.g. silyl, silyloxy groups)

X, Y is a hydrocarbon residues~~: e.g. methylene, isopropylidene, ethylene groups, functionalized hydrocarbon residues~~

m: number of repeating units = 1-20,

at temperatures from about 500 to about 1000°C and pressures less than 500 Pa to generate monomers in a gas phase; and

reducing the temperature to polymerize the functional polymer layer and form a polymer-coated endoprosthesis. ~~temperatures and/or pressures required for monomer production being between 500 and 1000°C and less 500 Pa.~~

2. (Currently amended) The method according to claim 1, wherein ~~characterized in that~~ dimers of structure (1) or (2), wherein n = 1, are cleaved into monomers at temperatures between 600 and 900°C and pressures of less than 100 Pa and the subsequent polymerization is carried out at temperatures of less than 120°C.

3. (Currently amended) The method according to claim 1, wherein ~~or 2, characterized in that~~ the functional polymer layer deposited on the ~~vascular~~ endoprosthesis ~~advantageously~~ has a layer thickness between 10 and 1000 nm. ~~more preferably a layer thickness of 200 – 400 nm.~~

4. (Currently amended) The method according to claim 1~~, 2 or 3, characterized in that for~~ further comprising
wetting the polymer-coated endoprosthesis in a water misicible solvent to form a wetted polymer-coated endoprosthesis ;

immersing the wetted polymer-coated endoprosthesis in water;

adding the active ingredient to the water, wherein the active ingredient is poorly soluble in water and precipitates to at least partially deposits on functional polymer layer.

~~depositing the active ingredient layer the polymer coated stent wet with a solution of the active ingredient(s) in a water miscible solvent, such as dimethylsulfoxide (DMSO), dioxane, dimethylformamide (DMF) or tetrahydrofuran (THF), is immersed in water, the water insoluble active ingredient precipitating and partially depositing on the surface.~~

5. (Currently amended) The method according to claim 4, wherein the functional polymer layer increases adhesion of ~~characterized in that~~ the active ingredient loading ~~and active ingredient adhesion are increased as~~ compared to the non-coated surface by hydrophobic and electrostatic interactions with the functional groups of the functional polymer coating.

6. (Currently amended) The method according to claim 4 ~~or 5~~, characterized in that the active ingredient(s) are additionally incorporated in part into the polymer layer.

7. (Currently amended) The method according to claim 4~~, 5, or 6, characterized by using water insoluble active ingredients or~~ wherein the active ingredients that is poorly soluble in water, comprises tretinoin, ~~and~~ tretinoin derivatives, orphan receptor agonists, elafin derivatives, corticosteroids, ~~and~~ steroidal hormones, ~~(such as methylprednisolone, dexamethasone, estradiole)~~, taxol, taxol derivatives, rapamune, tacrolimus, hydrophobic proteins or cell proliferation-altering substances.

8. (Currently amended) The method according to claims 4, ~~5 and 7, characterized in that~~ wherein the kinetics of the active ingredient release *in vivo* from the ~~vascular~~ endoprosthesis surface is determined by the poor solubility of the active ingredient in aqueous media.

9. (Currently amended) The method according to claim 4 ~~1~~, wherein ~~characterized in that~~ the active ingredient-containing layer is another polymer layer ~~produced by~~ covalently bonded to the functional layer, ~~a directly covalent bond,~~ or covalently bonded ~~a covalent bond~~ via a spacer system, to the functional polymer layer. ~~coating and subsequent loading with active ingredient~~.

10. (Currently amended) The method according to claim 9, ~~characterized in that~~ wherein the covalently bonded polymer is a thermosensitive polymer which at a temperature below 36°C in the active ingredient-containing medium has an open structure into which active ingredient molecules can be

incorporated and at temperatures ≥ 36°C has a closed structure in which the active ingredient molecules are enclosed.

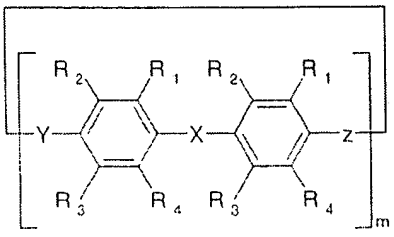
11. (Currently amended) The method according to claim 10, wherein the ~~claims 9 and 10, characterized by using active ingredients such as~~ the active ingredient is tretinoin, ~~and~~ tretinoin derivatives, orphan receptor agonists, elafin derivatives, corticosteroids, ~~and~~ steroid hormones ~~(such as methylprednisolone, dexamethasone, estradiol)~~, taxol, taxol derivatives, rapamune, tacrolimus, hydrophobic proteins or cell proliferation-altering substances.

12. (New) The method according to claim 1, wherein the functional polymer layer deposited on the endoprosthesis has a layer thickness between 200 – 400 nm.

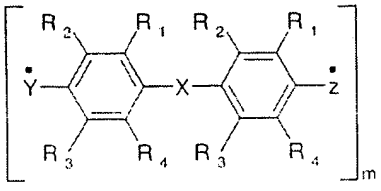
13. (New) The method according to claim 1, wherein the functional polymer is polyamine-p-xylylene-co-polyxylylene.

14. (New) The method according to claim 4, wherein the active ingredient is water insoluble.

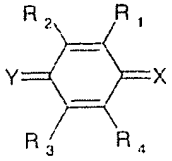
15. (New) A method of producing bioactive surfaces on an endoprosthesis, wherein the endoprosthesis comprises a functional polymer layer and an active ingredient-containing layer positioned on the functional polymer layer, the method comprising:
(a) depositing a first polymer of general structures (1), (2) or (3) or a combination thereof;



(1)



(2)



(3)

wherein $R_{1,2,3,4}$: are, equal or different and comprising, hydrogen atoms, halogen atoms, alkyl groups, substituted alkyl groups, aryl groups, substituted aryl groups, organic residues, organic radicals, a compound of the general structure CO (O-M-A), -wherein M: is an aliphatic or aromatic groups;
A is a hydrogen, hydroxyl group, amino group, carboxyl group, metallated group, hydroxyl group, amino group, carboxyl group, ester group, ether group, acid halide group, isocyanate group, sulfur containing group, nitrogen containing group, phosphorus containing group, or silicon containing group,
X, Y is a hydrocarbon residues
m: number of repeating units = 1-20,
at temperatures from about 500 to about 1000°C and pressures less than 500 Pa to generate monomers in a gas phase;

(b) reducing the temperature to polymerize the functional polymer layer and form a polymer-coated endoprosthesis;

(c) wetting the polymer-coated endoprosthesis in a water misicible solvent to form a wetted polymer-coated endoprosthesis;

(d) immersing the wetted polymer-coated endoprosthesis in water; and

(e) adding the active ingredient to the water, wherein the active ingredient is poorly soluble in water and precipitates to at least partially deposits on functional polymer layer.

16. (New) The method according to claim 15, wherein the wetting agent is dimethylsulfoxide (DMSO), dioxane, dimethylformamide (DMF) or tetrahydrofuran (THF).

17. (New) The method according to claim 15, wherein the active ingredient is tretinoin, tretinoin derivatives, orphan receptor agonists, elafin derivatives, corticosteroids, steroid hormones, taxol, taxol derivatives, rapamune, or tacrolimus.

18. (New) The method according to claim 15, wherein the active ingredient layer is a second polymer layer covalently bonded to the functional layer, wherein the second polymer layer comprises a thermosensitive polymer which at a temperature below 36°C in the active ingredient-containing medium has an open structure into which active ingredient molecules can be incorporated and at temperatures $\geq$ 36°C has a closed structure in which the active ingredient molecules are enclosed.

19. (New) The method according to claim 18, wherein the thermosensitive polymer is a hydrogel.

20. (New) The method according to claim 19, wherein the first polymer is a dimmer 4-amino-[2,2]-paracyclophane.